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## Putting California on the Map: Von Schmidt's Lines

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## Putting California on the Map: Von Schmidt's Lines

### Cover Page Footnote

David Carle is a former park ranger and the author of California Natural History Guides about water, fire, air, and soil (UC Press), as well as other books in water history and management, including *Drowning the Dream: California's Water Choices at the Millennium* and *Water and the California Dream*. His most recent book, published by Phalarope Press in 2018, shares the same title as this article.

## Putting California on the Map: Von Schmidt's Lines

David Carle

This is the life story of Alexey Waldemar von Schmidt (A.W.) who shaped California, literally, by surveying and marking boundaries that identify the state, but also, as key participant in California's history between 1849 and 1906. The "lines" in the book's title refer not just to survey lines, but also water lines he engineered and family lines that reveal the man himself.

Von Schmidt was born in Latvia and his family came to the United States in 1826. His father had been a civil engineer and was his primary teacher, so when gold was discovered in California in 1848 and word reached the East, A.W. was already working as an engineer for the government. He was 27 that year, and 28 when he came out to California in 1849.

Von Schmidt was one of the first to get on a ship that was heading from New York, when the Gold Rush began. He traveled by ship "around the Horn" of South America, and back up to San Francisco. He came on the *Pleides*, a boat that perhaps never should have left port because, after being battered by severe storms, it was forced to put into Mazatlan, Mexico for repairs. The port authorities there refused to let the ship continue onward. The '49ers on board *really* wanted to get to California before everybody else. There was another ship in port, the *Fanny*, so von Schmidt joined others crowding on board to finish his voyage.



Figure 1 A.W. and Fanny Mott von Schmidt.  
Courtesy of Alexa Gregory.

A.W.'s brother, Julius, and his father, Peter, also joined the rush to California later that year, but came separately, using the Panama isthmus crossing. When they arrived, like most of the '49ers, there remained the trip across California from the coast to the gold country in the Sierra foothills. Hundreds of ships arrived in San Francisco Bay that year and in the next few years, and their crews abandoned them to rush off to the mining areas. Von Schmidt went to the Feather River; in later years he described to his grandchildren the rich diggings there and showed them a leather pouch used to gather gold. But he did not find great wealth. The next year he worked on the American River trying to convince miners on dry land to purchase water pumped from the river. Back in New York, A.W. and Julius had patented a steam pump. In the coming years, many of the projects he got involved with in California involved the use of various versions of that water pump.

Within two years, A.W. met and married a young woman named Fanny. She was not quite 17 years old; the couple would raise three sons and a daughter.

By 1851, von Schmidt gave up mining and became Master of a steamboat on an overnight run between San Francisco and Stockton. His surveying career began as a contract with John Charles Fremont to map the Mariposa land grant. Fremont's wife, Jessie, wrote about the couple traveling to Stockton on the steamboat as the first leg of their travels to the Mariposa rancho. It is possible that A.W. met them on his boat and that led to the surveying job.

Owners of Spanish and Mexican land grants had to prove their titles, under requirements in the new State of California's constitution, and mapped surveys had to be provided at the

owners' expense. This became a major task for von Schmidt between 1852 and 1859. The first land grant to be considered by the commission hearing California land grant cases was Fremont's (he was a state senator and very important figure in early California history). A.W would meet other key land owners in this way, when he conducted surveys for Peter Lassen (along the northern Sacramento River), John Bidwell (Chico), and John Sutter.

Sutter's mill on the American River was where the gold discovery had been made in 1848, and his New Helvetia rancho would become the site of the future city of Sacramento. His grant stretched along the Sacramento River up to its Feather River tributary. In a letter to A.W. (from the Bancroft Library holdings), Sutter pleaded with the surveyor to get the job done quickly, "so I know what I can hope." Sutter was in debt and had given away more land than he ever owned, and he needed ownership resolved to sell off portions and pay his debts. Sutter, in this letter, suggests a cooperative wood marketing business using von Schmidt's boat on the Sacramento River (this apparently never happened).

The next major surveying task in California involved establishing townships and sections so that the government could sell its public land to homesteaders and ranchers. On an 1858 map of California, portions that had by then been surveyed include range and township lines on the coast and the length of the Central Valley. Von Schmidt was responsible for many of those surveys, which began from the east-west baseline extending from a Mt Diablo initial point (east of San Francisco Bay) across the state. North-south meridians were added, and ultimately 1-mile square sections (36 to each township)

In 1853, A.W surveyed in the Tulare Lake region, rich with wildlife, and took along a friend, Andrew Grayson, who would later be called "The Audubon of the West." Grayson sketched their camp on the Kings River slough and a self-portrait with A.W in the background beside an elk they had hunted. Grayson had been the leader of a wagon train when it left Independence, MO, in 1846. The Donner party split off from his wagon train, which was heading to Idaho and Oregon, to attempt a faster Sierra Nevada crossing, and, of course, was trapped by snow and tragedy in the mountains.

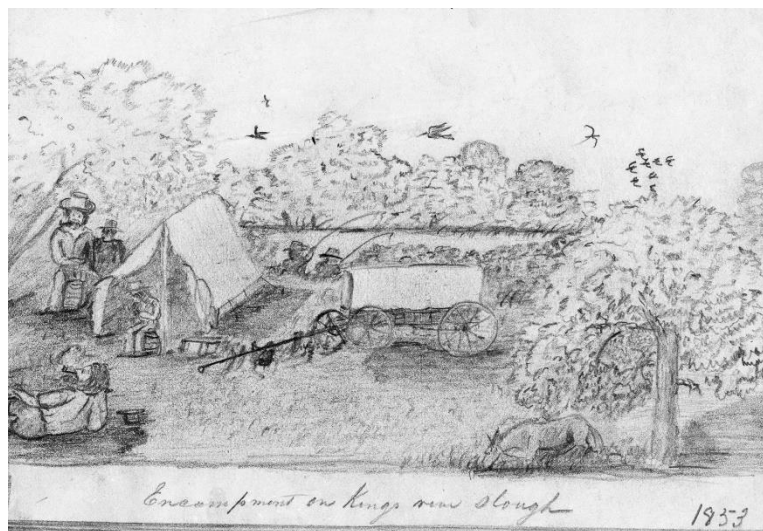


Figure 2 Andrew Grayson's sketch, "Encampment on Kings River Slough," 1853. Courtesy of the Bancroft Library

By 1855, the U.S government contracted with von Schmidt to extend the Mt Diablo baseline from the Sierra foothills, near Sonora, across the mountains toward the California/Nevada border. His party surveyed the straight eastward heading, through wild land that would someday be part of Yosemite National Park.

They did not know much about what they might encounter along that route. In 1851 and 1852, Lt. Tredwell Moore's troop of soldiers had chased Chief Tenaya's band of Indians out of Yosemite Valley (which the military group named based on names from their Yokut guides). The dragoons crossed over into the Mono Basin. They were not map-makers, not topographers,



but their descriptions of the area were used to create two inaccurate maps. There is no indication that in 1855 von Schmidt knew the name “Yosemite.”



Figure 3 Detail from 1853 map of California by John B. Trask. David Rumsey collection

On June 5, 1855, his survey party of 12 people included 6 to handle pack mules. His records record the step-by-step progress of their effort, marking township corners, up and down a very rugged landscape. Whatever lay beyond the crest of each new hill was a discovery for this survey party, and the excitement of exploration was, I think, part of the attraction for von Schmidt in this kind of task.

His pencil sketch of a waterfall in the lower Tuolumne River canyon was drawn on the back pages of one of his survey notebooks. The steepness of that gorge forced them to offset several times, ultimately to follow a parallel line to the baseline about 5 miles farther south until they reached the Sierra crest. The ultimate goal was to get back onto the baseline in the valleys of the east side that were more suitable for ranching and homesteading and ultimately establish the township/section grid there.

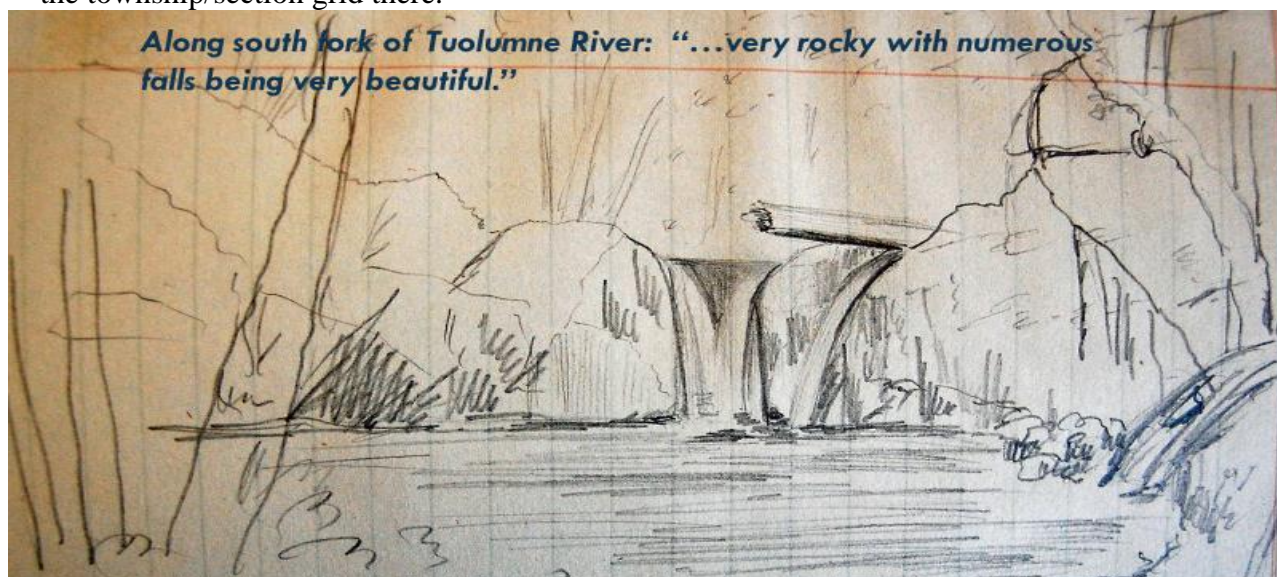


Figure 4. A.W. von Schmidt, 1855, survey notebook



Von Schmidt's daughter, Lily, wrote a short biography after A.W. died, including a story recounted by her father about stopping the crew early one day so he could sketch a beautiful waterfall. He did not call it "Yosemite falls" as that was not yet its name, but years later he speculated that he was the first non-Indian to see the valley and falls from the north rim. There is a persistent legend that Joseph Walker might have viewed the valley two decades earlier, but recent research suggests Walker crossed the Sierra farther to the north.

After the party struggled through snow on the approach to the Sierra crest, they finally reached a viewpoint of the Mono Lake basin. A.W.'s notes records that "the view out to the east and southeast is magnificent, ...the most beautiful that I ever saw."

They descended into the valley via Mono Pass, often called "Bloody Canyon," a name



Figure 5. A.W. von Schmidt field notebook, 1855

that probably originates with von Schmidt's description because his mules' legs were cut up by the sharp rocks. On the valley floor, they returned to the baseline itself, and then had to do a short jog around the north end of the Mono Craters, and continued eastward to a stopping point short of the unknown state boundary line.

He turned straight south and ran a line into the upper portion of the Owens Valley. Completing this initial survey, 120 miles in 40 days, set the stage for him to return six times in the next two years to complete township and section surveys from north of present-day Bridgeport to south of Owens Lake. The maps

included surveyed "meander" lines to approximate the shorelines of Mono Lake and Owens Lake which became important records for establishing the lake elevations in the late 20<sup>th</sup> century. No mines or homesteads were yet in this country, but a mining strike at Dogtown in late 1857 would begin that influx, just a few months after von Schmidt's 3-year survey effort was completed. A serious drought during those survey years, allowed the crews to make Sierra crossings even in the winter.

There were tensions with the local Indians. On August 22, 1856, while setting up camp in northern Bridgeport valley a band of Indians that had been out hunting rapidly approached armed with bows and arrows. Not sure of their intentions, von Schmidt circled his mules and waited to see their intentions, armed only with a single shot rifle (a member of the party was out hunting with their only shotgun). A.W. recognized a few of the men from his earlier trips, and traded a saddle blanket for pronghorn meat. His survey parties were never heavily armed and had no military escort. He had a talent for getting along with the wary local people.

Von Schmidt surveys that stitched back and forth across the landscape made the first recorded discoveries of hot springs and geysers (Hot Creek and Casa Diablo). His contract required that he describe the character of vegetation and soils throughout the area. In the Owens Valley, his plat maps and descriptions documented irrigated land, where the local Indians diverted streams to grow food crops, a practice now found among the state's native people except in the Owens Valley and near the Colorado River.

For the following decade and a half, von Schmidt moved back to San Francisco and carried out civil engineering tasks. He became the chief engineer for the Bensley Water Company serving parts of San Francisco, and then for the Spring Valley Water company, where he reached 30 miles south down the Peninsula to dam Pilarcitos Creek and transport its water via flumes, aqueducts, and tunnels into city reservoirs. That completed, he moved on to other projects.

In 1864 he proposed elevating the surface of Lake Tahoe behind a 6-foot dam and bringing it all the way to San Francisco. He never accomplished that dream, but kept pushing the concept for the next 30 years. Von Schmidt's dam at the mouth of the Truckee River was built, and later replaced in the early years of the 20<sup>th</sup> century by the US Bureau of Reclamation.

In 1867-'68 he designed and constructed the first dry dock on the Pacific Coast at Hunter's Point. It utilized massive versions of his steam pump to empty the excavated chamber once ships were floated in and gates were closed to the Bay. His excavation technique was considered so successful, that he then was hired in 1870 by the U.S. government to remove Blossom Rock, a major navigation hazard offshore from San Francisco. The underwater hill was just a few feet below the surface at low tide. He pumped water to expose the rock behind barriers, excavated caverns into the "rock," placed dynamite, and after successfully demolishing the rock while most of the city residents gathered to watch the spectacle, was paid \$75,000 in cash (over \$2 million today).

The dramatic Blossom Rock explosion was covered by the news across the nation (thanks to the telegraph), and even as distant as Europe and Australia, so his engineering fame spread far and wide

One of the biggest challenges of his life was to cocomplete a survey of the entire boundary line between California and the Nevada Territory. The state constitution had set that boundary along the 120 degrees West longitude line, beginning from the border with Oregon (42 degrees North latitude), turning southeast at 39 degrees N latitude to angle toward the Colorado River at the 35 degrees N latitude). The numbers made sense on paper, but proved very difficult to establish and mark on the ground. When the state was created, no one knew that Lake Tahoe would be bisected by the identified line. The total distance involved



Figure 5. Blossom Rock explosion on cover of Frank Leslie's Illustrated Newspaper, New York, May 21, 1870



was 611 miles, crossing over mountain ranges and across waterless desert stretches.

Earlier survey attempts were made, but none were successful until von Schmidt took on the task in 1872 and 1873. The longitude reading along the Oregon border proved one of the most difficult measurements, as it required accurate clocks and astronomical readings. In Honey Lake Valley, a 2-day “civil war” broke out in 1863 between residents who preferred to be part of the Nevada territory and the authorities in Plumas County Resolution required that an accurate survey be run (which would ultimately confirm that the valley lay entirely in California). Farther south, along the oblique line, the booming mining town of Aurora had been chosen as the Mono County seat, but ultimately surveys would find that it was actually 3 miles inside Nevada. An 1863 survey by Houghton and Ives, representing California and Nevada, answered those two big questions, but never completed the southern half of the survey.



Figure 6. Iron boundary marker placed by von Schmidt on north shore of Lake Tahoe, 1872. Image from Forest Service panel at Crystal Point; from Gladys Comstock Bennett collection.

In 1872, Von Schmidt began at the Oregon boundary from a different starting point than identified in two earlier surveys, benefitting from more accurate time-keeping made possible by the telegraph system along the railroad line. He placed four iron markers along the boundary. One was placed near Verdi, where the line intersected an important road, used at that time to cross the mountains. Today it sits in a little-visited spot north of Verdi and the railroad line. Another iron marker was placed on the north shore of Lake Tahoe.

In 1873, he continued southeast after establishing the corner in the middle of Lake Tahoe, a challenging calculation that involved steamboats, and fire and flag signals. Von Schmidt provided detailed handwritten descriptions of every mile of the surveyed line and very detailed maps.

Exiting Tahoe at the southeast corner, he placed a granite marker. Nearby, his notes say that the line “entered through the window of Mr. Lapham’s house,” and across his porch. Lapham’s Way Station

was a large boarding house for travelers at the time. A granite marker that had marked the boundary on the road to Carson City (from today’s Stateline), would later be moved because of development, and today sits outside the Courthouse Museum in Genoa, Nevada. The year shows that the “seven” in 1873 was re-carved from the 1863 marker placed by Houghton/Ives a decade earlier, when von Schmidt repositioned that marker.

Labels on von Schmidt’s detailed maps of the boundary include local Indian terms like the *Chung-up* Mountains “No Water Mountains” in the Mohave Desert. The last 40 miles of the desert crossing was the driest stretch, one that had defeated surveyors in 1862 who tried to come north from the Colorado River. A.W.’s mules carried their water from the last spring to cross that stretch, where his logbook records: “Not a living thing to be met along the line, but a few Horned Rattlesnakes, Horned Frogs, and Lizzards.”

At the Colorado River, von Schmidt’s survey was ¼ mile off the point previously established by an earlier survey. But the Colorado River had shifted over a mile away from the point established 12 years before, so von Schmidt telegraphed his boss in Washington DC for



instructions about where to locate the intersection of the latitude line and the river. He was told to go with the new position of the flow, which complicated his corrections considerably. Given a heading to follow back toward Tahoe, his party would discover that the correction was off-angle, and von Schmidt called a halt to the effort and returned to his San Francisco Bay and northern California projects. Von Schmidt's last iron marker is today in a small park near the Colorado River.

Today's topographic and national forest maps show the California/Nevada boundary line with a nearly parallel line labeled "Von Schmidt's Line, 1873." Corrections were made in the 1890s when even more accurate equipment had become available and Von Schmidt's line was determined to be inaccurate on its path toward the Colorado River. So, Boundary Peak in the White Mountains had been mapped inside California by A.W., but the later correction placed the peak inside Nevada.

Von Schmidt's worked on other surveying projects and invented a suction dredge used to create the Bay Area island of Alameda and at other ports. His later family life was punctuated by tragic early deaths of his sons and wife. Von Schmidt died in 1906 a month after the great earthquake and fire in San Francisco. The city where he had played such a prominent role during California's first half-century of statehood was preoccupied with that tragedy and barely noticed A.W.'s passing. His headstone in an Oakland cemetery provides his name, birth and death years, and then adds, simply: "A Pioneer."